

# PATENT SPECIFICATION

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## (54) VALVE CORES FOR PNEUMATIC TYRE VALVES FOR VEHICLES

(71) I, HORST-GUNTER RISSMANN, a German Citizen, of Trebbiner Strasse 12, 1 Berlin 61, Germany, do hereby declare the invention for which I pray that a Patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to valve cores for pneumatic tyre valves for vehicles, and in particular to a valve core of the kind in which a body is formed by an inner sleeve housed in sealing relation with an outer sleeve, and in which a valve pin passes through a bore extending axially of the inner sleeve and carries a closure member of elastomeric material at one end, the inner sleeve carrying the valve seat and being inserted in a leakproof manner in a valve housing.

According to the invention there is provided a valve core for a pneumatic tyre valve for a vehicle comprising a body formed by an inner sleeve which is housed in sealing relation with an outer sleeve and at one end has a radially extending seating surface, a valve pin which passes through a bore extending axially of the inner sleeve, and a closure member of elastomeric material carried by the valve pin for movement thereby into and out of sealing relation with said seating surface, said closure member including a cylindrical surface of reduced diameter which when the closure member is in seating relation with said seating surface lies against the inner wall of the inner sleeve to produce an axial seal therewith.

A constriction in said bore adjacent to the radially extending seating surface may be arranged to apply an initial pressure to the reduced diameter part of the closure member. In this way the reduced diameter part of the closure member, during closing, receives an initial pressure prior to appli-

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cation against the axial sealing surface. Furthermore a resistance is provided against unintentional opening of the valve as a result of the effects of centrifugal force or impacts.

The last-mentioned result can be achieved in a modified manner by providing two radially extending seating surfaces displaced axially and radially from one another and by providing the closure member accordingly with two parts whose diameters are reduced by different amounts. By means of this design the sealing effect is improved by virtue of the fact that two successive pairs of radial and axial sealing surfaces are provided which act one after the other.

Specific embodiments of the invention will now be described by way of example and with reference to the accompanying drawings, in which:—

Figure 1 is a vertical section through one embodiment;

Figure 2 is a vertical section through a modified form of construction; and

Figure 3 is a vertical section through a third form of construction.

In each figure, the valve is shown in the open position in the left-hand half of the figure and in the closed position in the right-hand half.

Referring to the drawings, a valve core comprises a body formed by an inner sleeve 1 and an outer sleeve 18 with the interposition of a seal 6 in the region of a conical surface. The inner sleeve 1 contains a cylindrical bore 19 which ends at the bottom in an annular valve seat 3 which has a radially extending seating surface. A valve pin 2, which has a conically widened head 20 passes with clearance through the inner sleeve and underneath the head 20 is a closure member 10 of elastomeric material carried on the valve pin 2 and held by a sheet metal cup-like member 21 against the head 20.

The closure member 10 is cylindrical in shape and at the top has a part 10' of reduced external diameter. When the valve is in the closed position, the shoulder 5 between the two parts of the closure member 10 comes to rest against the valve seat 3 and forms a radial sealing surface. In this position, the reduced diameter part 10' of the closure member has entered into the bore 19 of the inner sleeve 1 and lies in sealing manner against the axial surface 12, so that two sealing surfaces arranged one after the other are provided.

The embodiment according to Figure 15 2 differs from the first form of construction merely in the fact that in the region of the valve seat 3 the bore 19 in the inner sleeve 1 has a constriction 22 by means of which the reduced diameter part 10' of the closure member receives an initial pressure when in the closed position, which is advantageous as has been mentioned above.

In the construction according to Figure 3, the bore 19 in the inner sleeve 1 is provided in the region of the valve seat 3 with a counter-bore or enlarged portion so that a further radially extending seating surface 23 is formed which is displaced axially and radially from the radially extending seating surface of the valve seat 3. The closure member 10 is accordingly provided with two parts 10' and 10'' whose diameters are reduced by different amounts.

Since, when the valve is in the closed position, two pairs of axial and radially extending sealing surfaces are arranged one after the other and engage one after the other, a better seal is achieved. Furthermore, better adhesion of the closure member to the inner sleeve is obtained, which opposes any unintentional opening of the valve.

The construction according to the invention is suitable for motor vehicle tyre 45 valves and also for cycle tyre valves.

#### WHAT I CLAIM IS:—

1. A valve core for a pneumatic tyre valve for a vehicle comprising a body formed by an inner sleeve which is housed in sealing relation with an outer sleeve and at one end has a radially extending seating surface, a valve pin which passes through a bore extending axially of the inner sleeve, and a closure member of elastomeric material carried by the valve pin for movement thereby into and out of sealing relation with said seating surface, said closure member including a cylindrical surface of reduced diameter which when the closure member is in sealing relation with said seating surface lies against the inner wall of the inner sleeve to produce an axial seal therewith.

2. A valve core according to Claim 1, wherein a constriction in said bore adjacent to the radially extending seating surface is arranged during closing movement of the closure member to apply an initial pressure to the reduced diameter part of the closure member prior to the closure member effecting said axial seal.

3. A valve core according to Claim 1, including two radial seating surfaces displaced axially and radially from one another and wherein the closure member is accordingly provided with two parts whose diameters are reduced by different amounts.

4. A valve core for a pneumatic tyre valve for a vehicle, substantially as hereinbefore described with reference to Fig. 1, Fig. 2 or Fig. 3 of the accompanying drawings.

PAGE, WHITE & FARRER.  
Chartered Patent Agents,

27 Chancery Lane,  
London, WC2A 1NT.

Agents for the Applicant.

Fig. 1

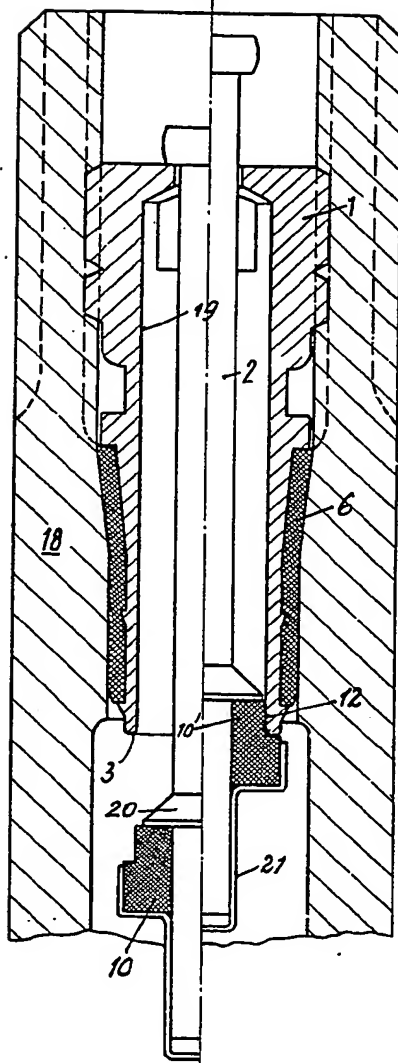
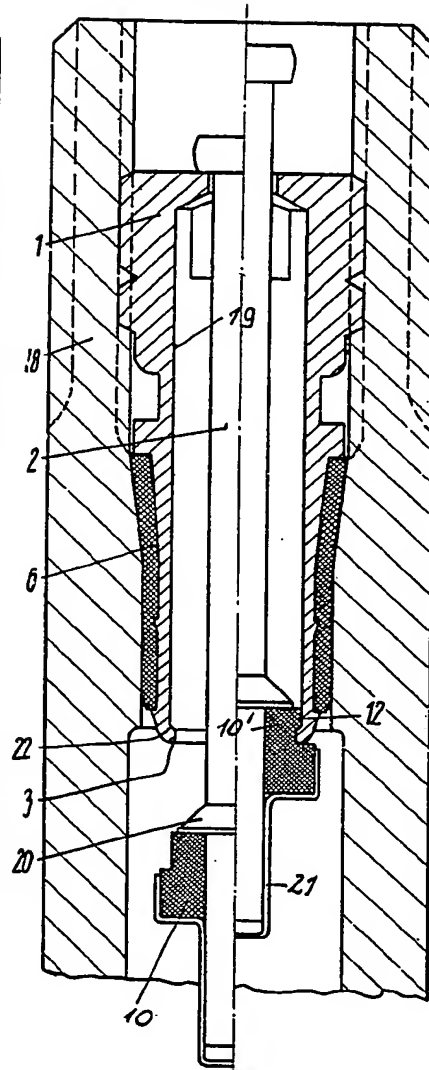


Fig. 2



**Fig. 3**

